

GILA RIVER BASIN

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ

LOCATION.--Lat 32° 52' 06", long 109° 30' 38", in SE1/4NE1/4 sec. 31, T.6 S., R.28 E., Graham County, Hydrologic Unit 15040005, on left bank 0.6 mi downstream from intake of Brown Canal, 8 mi northeast of Solomon, and 17 mi downstream from San Francisco River. Records include flow of Brown Canal, which is measured 2,000 ft downstream from intake.

DRAINAGE AREA.--7,896 mi².

PERIOD OF RECORD.--Apr. 1914 to current year. Monthly discharge only for some periods, published in WSP 1313. Prior to Oct. 1932 and Oct. 1940 to Sept. 1949 published as "near Solomonsville" and Oct. 1932 to Oct. 1933 and May 1935 to Sept. 1940 as "below Bonita Creek near Solomonsville."

REVISED RECORDS.--WSP 1059: 1914, 1916--17, 1923(M), 1924--25, 1927, 1929--31(M). WSP 1179: 1915, 1918--19(M). WSP 1313: 1934. WSP 1733: 1923.

GAGE.--Water-stage recorder. Datum of gage is 3,059.92 ft above sea level. Prior to July 8, 1980, at datum 4.96 ft higher. See WSP 1733 for history of changes prior to Jan. 1, 1941. Supplementary water-stage recorder and Parshall flume on Brown Canal.

REMARKS.-- Records good, except estimated daily discharges, which are poor. Records show water reaching head of Safford Valley and include water diverted to Brown Canal. Diversions above station for mining, municipal use, and for irrigation of about 17,500 acres, much of it by pumping from ground water.

COOPERATION.--Record for Brown Canal furnished by Gila Water Commissioner.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 132,000 ft³/s Oct. 2, 1983, gage height, 20.8 ft, from rating curve extended above 52,000 ft³/s on basis of slope-area measurements at 14.40 ft and 20.8 ft; minimum, 11 ft³/s June 25, 1956.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft³/s and (or) maximum (*):

Date	Time	Discharge (ft ³ /s)	Gage height (ft)
Sept. 12.....	1500	*4,740	*10.76

Minimum daily discharge, 30 ft³/s June 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88	99	139	167	168	141	113	77	49	31	143	78
2	84	99	139	167	168	138	112	75	48	31	122	83
3	83	101	139	167	170	138	111	75	47	32	127	92
4	84	102	139	168	172	138	107	74	46	32	471	91
5	86	102	140	170	175	136	106	71	45	33	325	85
6	90	106	139	171	177	135	107	70	45	34	259	82
7	92	107	138	171	178	135	108	69	49	31	589	78
8	89	108	140	172	177	135	106	68	47	31	291	77
9	90	107	139	171	177	133	105	67	46	32	216	84
10	90	111	140	171	175	131	102	66	43	34	208	84
11	87	114	143	171	176	128	99	64	42	36	223	982
12	85	116	148	170	177	124	95	64	41	e39	228	4040
13	86	117	152	171	175	125	91	63	40	e39	165	2710
14	89	120	154	170	171	123	91	62	40	e40	136	1160
15	89	120	156	170	169	123	89	62	37	e41	122	628
16	90	122	158	168	169	124	87	61	37	e46	114	426
17	91	123	159	165	167	123	88	61	36	60	120	334
18	92	124	161	162	163	124	87	63	36	67	102	277
19	89	124	162	161	160	125	86	61	35	64	94	238
20	90	125	161	161	162	125	84	61	36	73	125	205
21	90	127	162	161	161	124	84	60	36	61	130	180
22	92	129	164	162	159	125	81	58	35	86	119	157
23	92	128	165	165	158	123	82	58	34	120	97	142
24	92	130	167	167	153	122	81	57	33	101	87	129
25	90	134	167	165	150	121	82	58	32	112	85	119
26	93	136	167	166	148	120	79	55	30	85	76	110
27	94	136	168	167	145	118	77	55	31	77	72	102
28	96	137	169	166	144	117	79	54	32	232	70	98
29	96	137	169	167	---	117	78	53	32	191	72	98
30	98	138	168	168	---	116	78	54	32	219	78	96
31	99	---	167	169	---	115	---	51	---	181	76	---
TOTAL	2796	3579	4779	5187	4644	3922	2775	1947	1172	2291	5142	13065
MEAN	90.19	119.3	154.2	167.3	165.9	126.5	92.50	62.81	39.07	73.90	165.9	435.5
MAX	99	138	169	172	178	141	113	77	49	232	589	4040
MIN	83	99	138	161	144	115	77	51	30	31	70	77
MED	90	121	158	167	168	124	88	62	37	46	122	114
AC-FT	5550	7100	9480	10290	9210	7780	5500	3860	2320	4540	10200	25910
CFSM	0.01	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.00	0.01	0.02	0.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2002, BY WATER YEAR (WY)

	MEAN	387.3	279.5	518.7	703.0	747.4	856.2	578.9	302.4	108.0	205.3	501.0	392.6
MAX	7447	2230	5798	13990	5509	3629	2775	2038	716	736	2499	2081	
(WY)	1984	1979	1979	1993	1993	1991	1973	1973	1992	1921	1923	1975	
MIN	39.9	48.6	60.1	92.8	102	82.3	63.8	37.8	19.7	44.4	66.0	35.9	
(WY)	1957	1957	1957	1954	1954	1971	1971	1956	1956	1947	1960	1956	

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1921 - 2002

ANNUAL TOTAL	94073	51299	
ANNUAL MEAN	257.7	140.5	464.7
HIGHEST ANNUAL MEAN			2229
LOWEST ANNUAL MEAN			101
HIGHEST DAILY MEAN	1180	Apr 7	90000
LOWEST DAILY MEAN	74	Jun 25	13
ANNUAL SEVEN-DAY MINIMUM	75	Jun 25	15
ANNUAL RUNOFF (AC-FT)	186600	101800	336600
ANNUAL RUNOFF (CFSM)	0.033	0.018	0.059
10 PERCENT EXCEEDS	586	171	979
50 PERCENT EXCEEDS	168	112	177
90 PERCENT EXCEEDS	89	44	64

e Estimated

GILA RIVER BASIN

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ—CONTINUED

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Jan. 1976 to Oct. 1981, Oct. 1988 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	TUR- BID- ITY (NTU) (00076)	BARO- METRIC PRES- SURE (MM OF HG) (00025)	OXYGEN, DIS- SOLVED (MG/L) (00300)	OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) (00301)	PH WATER WHOLE FIELD (STAND- ARD UNITS) (00400)	SPE- CIFIC CON- DUCT- ANCE (US/CM) (00095)	TEMPER- ATURE AIR (DEG C) (00020)	TEMPER- ATURE WATER (DEG C) (00010)	HARD- NESS NONCARB DISSOLV FLD. AS CACO3 (MG/L) (00904)	HARD- NESS TOTAL (MG/L AS CACO3) (00900)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)
DEC 06...	1205	139	20	686	11.3	110	8.5	1010	15.0	9.5	36	210	60.0
MAR 20...	1225	121	9.2	685	10.6	117	8.7	1040	23.0	14.9	46	200	57.0
MAY 22...	1150	56	3.0	679	9.1	117	8.4	1350	28.5	21.7	110	240	68.0
AUG 22...	1205	103	790	685	6.9	96	8.3	1060	33.0	26.8	42	190	57.0
Date	CALCIUM TOTAL RECOV- ERABLE (MG/L AS CA) (00916)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	MAGNE- SIUM, TOTAL RECOV- ERABLE (MG/L AS MG) (00927)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	SODIUM AD- SORP- TION RATIO (00931)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	ALKA- LINITY WAT DIS TOT IT FIELD MG/L AS CACO3 (39086)	BICAR- BONATE WATER DIS IT FIELD MG/L AS HCO3 (00453)	CAR- BONATE WATER DIS IT FIELD MG/L AS CO3 (00452)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SULFATE SUS- PENDE (MG/L AS SO4) (00945)	RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) (00530)
DEC 06...	63.0	14.0	15.0	6.90	4	120	171	197	6	170	1.3	76.0	37
MAR 20...	58.0	13.0	15.0	6.70	4	120	150	166	8	190	1.2	76.0	16
MAY 22...	68.0	16.0	16.0	9.20	5	180	128	147	5	280	1.4	110	14
AUG 22...	67.0	11.0	17.0	7.40	3	100	146	161	8	170	1.0	57.0	528
Date	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AMMONIA TOTAL (MG/L AS NH4) (71845)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS TOTAL (MG/L AS P) (00665)	OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) (00340)	E COLI, MTEC MF (COL/ 100 ML) (31633)	COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)
DEC 06...	.84	616	551	E.20c1	.02	.03	.300	--	--	E.06c1	<5	E10k	E5k
MAR 20...	.84	616	554	<.20	.03	.04	<.020	--	--	<.02	<5	E1k	<1k
MAY 22...	1.07	788	742	<.20	.04	.05	<.020	--	--	<.02	6	E3k	E4k
AUG 22...	.77	564	528	.90	<.01	--	.410	1.3	5.8	.60	9	E200k	--
Date	ANTI- MONY, DIS- SOLVED (UG/L AS SB) (01095)	ANTI- MONY, TOTAL (UG/L AS SB) (01097)	ARSENIC DIS- SOLVED (UG/L AS AS) (01000)	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) (01007)	BERYL- LIUM, DIS- SOLVED (UG/L AS BE) (01010)	BERYL- LIUM, TOTAL RECOV- ERABLE (UG/L AS BE) (01012)	BORON, DIS- SOLVED (UG/L AS B) (01020)	BORON, TOTAL RECOV- ERABLE (UG/L AS B) (01022)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CADMIUM WATER UNFLTRD TOTAL (UG/L AS CD) (01027)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)
DEC 06...	<1	<1	3	4	43.0	53.0	<1	<1	108	110	<.5	<.5	<1
MAR 20...	<1	<1	4	4	41.0	47.0	<1	<1	115	117	<.5	<.5	<1
MAY 22...	<1	<1	3	3	53.0	57.0	<1	<1	142	148	<.5	<.5	<1
AUG 22...	<1	<1	4	6	56.0	160	<1	1	93	101	<.5	<.5	<1

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) (01034)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)	COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) (01042)	IRON, DIS- SOLVED (UG/L AS FE) (01046)	IRON, TOTAL RECOV- ERABLE (UG/L AS FE) (01045)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) (01051)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) (01055)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	NICKEL, DIS- SOLVED (UG/L AS NI) (01065)	NICKEL, TOTAL RECOV- ERABLE (UG/L AS NI) (01067)	
	DEC 06...	1	<2	4	<2	910	<2	<2	3	36	<.10	<.1	<1	2
	MAR 20...	<1	<2	3	<2	499	<2	<2	5	20	<.10	<.1	<1	<1
	MAY 22...	<1	<2	<2	<2	203	<2	<2	11	20	<.10	<.1	<1	<1
AUG 22...	8	4	54	2	8420	<2	12	2	457	<.10	<.1	2	16	
Date	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SELE- NIUM, TOTAL (UG/L AS SE) (01147)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) (01077)	STRON- TIUM, TOTAL RECOV- ERABLE (UG/L AS SR) (01082)	THAL- LIUM, DIS- SOLVED (UG/L AS TL) (01057)	THAL- LIUM, TOTAL (UG/L AS TL) (01059)	ZINC, DIS- SOLVED (UG/L AS ZN) (01090)	ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) (01092)	SEDI- MENT, SUS- PENDE (MG/L) (80154)	SEDI- MENT, CHARGE, SUS- PENDE (T/DAY) (80155)			
	DEC 06...	<1	<1	<1	<1	690	<2	<2	4	4	33	12.4		
	MAR 20...	<1	<1	<1	<1	710	<2	<2	7	3	19	6.2		
	MAY 22...	<1	<1	<1	<1	880	<2	<2	19	<2	10	1.5		
AUG 22...	<1	<1	<1	<1	740	<2	<2	21	51	579	161			
Remark codes used in this report:														
< -- Less than														
E -- Estimated value														
Value qualifier codes used in this report:														
c -- See laboratory comment														
k -- Counts outside acceptable range														
l -- Sample lab preparation problem														

09448500 GILA RIVER AT HEAD OF SAFFORD VALLEY, NEAR SOLOMON, AZ—CONTINUED

WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Water-quality measurements in the following table were made as part of the ADEQ Fixed-Station Network Program. The following analyses are quality-assurance samples processed during the 2002 sampling period and are defined in the introductory text section titled "Water-Quality Control Data".

Date	Time	Sample type	PH WATER WHOLE FIELD (STANDARD ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOS-PHORUS TOTAL (MG/L AS P) (00665)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)
MAY 22...	1155	2	5.7	1	20.5	.03	<.03	<.1	<.20	<.01	<.020	<.02	<3
Date	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BERYL-LIUM, DIS-SOLVED (UG/L AS BE) (01010)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)			
MAY 22...	<.5	<1	<.5	<1	<2	<2	<2	<1	<1	3			
Remark codes used in this report:													
< -- Less than													